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ABSTRACT

A study investigated the effects of symbolic play treated as a mediator for increasing language comprehension and facilitating oral language growth. The study included two aspects of language: language comprehension and language development. Independent variables were forms of play--puppet action, body action, abstract (imagined) action, and no action (control); age; and sex. Dependent measures were cloze comprehension, 10-item measures for language comprehension, and the students' connected discourse scored t-units for language development. Subjects were 80 five-year-olds and 80 seven-year-olds. After no significant main or interaction effects on preassessment language measure between the factors were found and after the treatments were completed, major findings were as follows: (1) on the cloze measure of language comprehension, children in the body action play group received significantly higher mean scores than did those in the abstract action play and control groups; (2) on the question measure of language comprehension, five-year-olds in the puppet action and body action play groups received significantly higher mean scores than did the five-year-olds in the abstract action and play groups; and (3) on the t-unit measure of language development, the seven-year-olds received significantly higher mean scores than did the five-year-olds. There were no significant effects for sex. (Author/HTH)

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COVER PAGE

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Title of Paper: An Investigation of the Effects of Forms of Imaginative Play on Language Development and Language Comprehension in Young Children

ABSTRACT

The purpose of this study was to investigate the effects of symbolic play treated as a mediator for increasing language comprehension and facilitating oral language growth.

The study included two aspects of language: language comprehension and language development. Independent variables were: a) forms of play, (puppet action, body action, abstract action and control); b) age, (five and seven year old children); and c) sex. Dependent measures (language comprehension) were cloze comprehension and ten-item comprehension question measures and (language development) was the students' connected discourse scored t-units.

There were 160 five (80 - 40 males, 40 females) and seven (80 - 40 males, 40 females) year old children. After no significant main or interaction effects on preassessment language measure between the factors were found and after the treatments were completed, several major findings were:

1. On the cloze measure of language comprehension, children in the body action play group received significantly higher mean scores than the abstract action play and control groups.

2. On the question measure of language comprehension, five year olds in the puppet action and body action play groups received significantly higher mean scores than the five year olds in the abstract action play and control groups.

3. On the t-unit measure of language development, the seven year olds received significantly higher mean scores than the five year olds.

An Investigation of the Effects of Forms of Imaginative Play on Language Development and Language Comprehension in Young Children

Introduction

Play of young children, oral language and language comprehension were the major foci of this study. This study had two major purposes. The first purpose of the study was to examine play as a mediator for facilitating oral language development. Previous paired associate studies, which dealt with play behaviors and cognition as reported by Bender and Levin, 1976; Wolff and Levin, 1972; and Wolff, Levin and Longobardi, 1972 were in singular agreement on the efficacy of using symbolic play to induce or facilitate imaging (cf. Levin's investigations at The Wisconsin Research and Development Center for Cognitive Learning.) Secondly, imaging was found crucial to language growth in all of these studies.

The second purpose of this study was to investigate the effects of symbolic play treated as a mediator for language comprehension using Piagetian postulates. It was theorized that improved language comprehension may lead to a greater understanding of written language. It was expected that if play aids children's oral language growth, symbolic play would be an applied tool for children in approaching tasks of language comprehension. In the applied instance, listening and reading as receptive language modes of language comprehension were closely associated with reading comprehension in numerous studies (Gibson & Levin, 1975; Otto, McMenemy & Smith, 1973; Durkin, 1972; Kavanagh & Mattingly, 1972; Smith, 1971).

Accordingly, the major purposes of this study were to examine play as a mediator for facilitating oral language growth and to investigate the effects of symbolic play treated as mediator for language comprehension.

Hypotheses

The hypotheses for this investigation were:

1. There will be a significant difference between experimental and control groups on the cloze measure of language comprehension.

2. There will be a significant difference between experimental and control groups on the ten item predictive-literal questions measure of language comprehension.

3. There will be a significant difference between experimental and control groups on t-units as measures of oral language development.

4. There will be a significant difference between five and seven year old children on the cloze measure of language comprehension.

5. There will be a significant difference between five and seven year old children on the ten item predictive-literal questions measure of language comprehension.

6. There will be a significant difference between five and seven year old children on t-units as measure of oral language development.

7. There will be a significant difference between boys and girls on the cloze measure of language comprehension.

8. There will be a significant difference between boys and girls on the ten item predictive-literal questions measure of language comprehension.

9. There will be a significant difference between boys and girls on t-units as measures of oral language development.

10. There will be a significant interaction between treatment and age of the participants on the cloze measure of language comprehension.

11. There will be a significant interaction between treatment and age of the participants on the ten item predictive-literal questions measure of language comprehension.

12. There will be a significant interaction between treatment and age of the participants on t-units as measures of oral language development.

13. There will be a significant interaction between treatment groups and sex of the participants on the cloze measure of language comprehension.

14. There will be a significant interaction between treatment groups and sex of the participants on the ten item predictive-literal questions measure of language comprehension.

15. There will be a significant interaction between treatment groups and sex of the participants on t-units as measures of oral language development.

16. There will be a significant interaction between treatment, age and sex of the participants on the cloze measure of language comprehension.

17. There will be a significant interaction between treatment, age and sex of the participants on the ten item predictive-literal questions measure of language comprehension.

18. There will be a significant interaction between treatment, age and sex of the participants on t-units as measures of oral language development.

Method

Research Design

The study included two aspects of language: a) language comprehension; and b) language development. The overall design for the language comprehension section was a 4 x 2 x 2 completely randomized factorial design using a fixed effects model. The three independent variables were: (a) Piagetian defined Forms of Play (puppet action, body action, abstract action and control); (b) Age (five and seven year old children); and (c) Sex (male and female). The dependent measures for language comprehension were the children's absolute scores from the: (1) cloze comprehension measure and the (2) ten item literal-inferential comprehension measure. Procedures for multifactor experiments as outlined by Winer (1962) were followed. The Tukey procedure was run for post hoc analysis.

The overall design for the language development section was a 4 x 2 x 2 completely randomized factorial design using a fixed effects model. The three independent variables were: (a) Piagetian defined Forms of Play (puppet action, body action, abstract action and control; (b) Age (five and seven year old children); and (c) Sex (male and female). The language samples were analyzed by t-units (communication units), quantitative measures of language complexity (Loban, 1976). The dependent measure for language development was the child's connected discourse scored t-units. Procedures for multifactor experiments as outlined by Winer (1962) were followed. The Tukey procedure was run for post hoc analyses.

Subjects

The subjects for this study consisted of 160 students. Within the sample, 80 subjects were five year olds, 40 boys and 40 girls and 80 subjects were seven year olds, 40 girls and 40 boys. To include children in the study who were functioning at two different levels of cognitive development, a restriction on the random sampling in the study was pooling only from those subjects who were chronologically aged between the ranges of five years, five months to five years, eleven months (pre-operational thinking) and seven years, five months to seven years, eleven months (concrete operational thinking). After those subjects meeting the age criteria were identified, a request for parent permission for them to participate in the study was sent home. All children with parent permission to participate were included in the study. All subjects were selected from the State College Area School District, State College, Pennsylvania, a rural, middle-class, central Pennsylvania community.

Tested individually, the 160 children were placed into respective groups using random assignment with replacement procedures (Winer, 1962). The stratified groups by equal number of students were: (a) Forms of Play - 3 treatments and 1 control; (b) Age; and (c) Sex.

Procedure

The procedure was divided into three phases: (a) Rapport; (b) Treatment; and (c) Assessment. The procedures within each phase are described in the following sections.

Rapport. The purpose of the rapport phase was for the experimenter to establish a relaxed working relationship with each student. During

this phase the experimenter chatted informally with the student as the two became acquainted.

Treatment. The procedures differed according to the particular group to which children were assigned. The four groups were: (a) puppet action; (b) body action; (c) abstract action-imagery; and (d) control. All participants received the same general instructions. They were told that they: (a) will be playing a game; (b) will hear a story about a "funny" person named, "Mr. Strong;" (c) must listen carefully to the story; (d) will be asked to do different things which Mr. Strong did; and (e) can select a prize at the end of the game if they play the game well. The specific procedures used with each group are described in the following paragraphs.

Puppet-Action. After listening to the story, the participants in the puppet-action treatment group were asked to use the Mr. Strong puppet to show what Mr. Strong did in the story and/or to show what happened in the story. In this way, the child practiced or rehearsed the story content

Body Action. After listening to the story, the children in this treatment group were instructed to use their bodies to show what Mr. Strong did in the story. The children showed what the character in the story did and what happened in the story using body actions and movements of arms, head, trunk, and legs in individual and coordinated fashion

Abstract-Action-Imagery. After listening to the story, the children in this treatment group were instructed to listen to the special words from the Mr. Strong story and to think about what

Mr. Strong did and what happened to Mr. Strong as they listened to the special words.

Control. The children assigned to the control group listened to the taped story and had no opportunity to rehearse the story content prior to participating in the assessment activities. Children in the control group put puzzles together for a time period equal to the story rehearsal time in the treatment conditions.

Assessment. For the initial assessment, each participant was asked to draw a picture of his/her home, him/herself and a parent. Upon completion of the drawing, the children were asked to orally tell about their pictures. The oral responses of the children derived from their descriptions of the pictures were tape recorded and provided an initial assessment score to determine whether children in all groups were homogeneous in language comprehension/development.

The language measures consisted of language comprehension and language development assessments. The language comprehension assessment included responses to: (a) a cloze paragraph; and (b) ten story questions. After the treatment conditions, the children were asked to listen to a tape recording of the Mr. Strong story in which every tenth word was deleted. As they listen to this cloze version of the story, they were asked to tell what word they thought was missing when the "buzz" on the tape recorder sounded. The second part of the language comprehension assessment was a set of ten questions, five at the literal level of understanding and recall and five at the predictive-inferential level.

The language development assessment was administered after the treatment conditions. In the language development assessment, the

children were asked to retell the Mr. Strong story that they had heard and practiced. The students' responses were tape recorded and provided a measure of their language growth. The taped language samples were transcribed and then analyzed following the t-unit language growth measure procedures described by Loban (1976).

The language comprehension and language development assessments were administered alternately by odd and even numbered subjects. The two subtests within the language comprehension measure were also administered alternately to odd and even numbered subjects. All subjects completed all of the language comprehension and language development assessments.

Results

Results Introduction

The present investigation involved the effects of puppet action, body action, abstract action and control on language comprehension as measured by a cloze paragraph and ten story questions and on language development as determined by the t-unit (or communication unit) measure. Two additional factors concerning the effects of child's play were of interest in this investigation. The first was the age (five year olds versus seven year olds) of the child and the second was the sex (boy versus girl) of the child.

The factors of play and control treatments were crossed orthogonally implying a 4 x 2 x 2 analysis of variance (ANOVA) as described in Myers (1979). Factors A, B and C in the analyses were entered as main effects. Since previous researchers (Anderson, Lesgold, Levin, Rohwer) have established a .05 as an acceptable alpha in related studies, a .05

confidence level for rejecting null hypotheses was established for the present investigation.

Preliminary Analysis

All children were administered a pre-assessment on language comprehension. The pre-assessment determined whether or not the play (puppet action, body action, abstract action) and control groups and age, and sex groups were homogeneous with respect to language comprehension at the beginning of the investigation. Accordingly, on the t-units (communication units) used as a pre-assessment, one 4 x 2 x 2 ANOVA was run. The results of the analysis indicated a significant main effect for age, $F(1,114) = 26.42$, $p < .05$ with seven year olds receiving significantly higher mean scores than the five year olds on the t-unit measure of language development/comprehension. In addition, the results indicated no significant main effect for sex or treatment. Also there were no significant interaction effects. The results of the preliminary analyses showed that the children randomly assigned to the treatment groups were initially homogeneous within age, sex and treatment groups relative to the t-unit measure of language development/comprehension used in this study. However, the results of the analysis showed that seven year old children yielded significantly higher mean scores than the five year olds.

Major Results

On the cloze measure of language comprehension, the results indicated significant main effects for age, $F(1,144) = 11.99$, $p < .05$; and for treatment groups, $F(3,144) = 6.56$, $p < .05$. There were no significant main effects for sex. There were no significant interaction effects for age x sex, age x treatment, sex x treatment, or age x sex x

treatment. Using the Tukey post hoc statistic as described in Winer (1962) on the significant main effect of treatment groups, the results indicated that children in the body action group yielded significantly higher scores on the cloze measure of language comprehension than the abstract action group. Secondly, children in the body action group yielded significantly higher scores on the cloze measure of language comprehension than the control group. By comparing the means between the two age groups as described by Winer (1962), seven year olds received significantly higher mean correct scores than five year olds on the cloze measure.

On the language comprehension question measure, the results showed significant main effects for age, $F(1,144) = 30.11$, $p < .05$; and for treatment groups, $F(3,144) = 11.16$, $p < .05$. There was a significant interaction effect for age x treatment, $F(3,144) = 2.79$, $p < .05$. On this language comprehension measure, there were no significant main effects for sex. There were no significant interaction effects for age x sex, sex x treatment, or for age x sex x treatment. Using the Tukey post hoc statistic on the main effect of treatment groups to determine where the significant differences between the groups existed, the results indicated that children in the puppet action group yielded significantly higher scores on the language comprehension questions than those in the abstract action and control groups. Also, those children in the body action group yielded significantly higher mean scores than those in the abstract action and control groups. Those in the body action group did not differ significantly from those in the puppet action group on the language comprehension question measure. These results occurred only for the five year old children. The significant age x treatment

interaction effect showed that the seven year olds in the abstract action group yielded significantly higher mean scores than the five year olds in the abstract action. Also, the seven year olds in the control group yielded significantly higher mean scores than the five year olds in the control group.

On the language development measure, the results showed a significantly main effect for age, $F(1,144) = 34.32$, $p < .05$. Again, by comparing the means between the two age groups as described in Winer (1962), seven year olds received significantly higher mean t-unit scores than five year olds. On the t-unit language development measure, there were no significant main effects for sex or for the treatment. There were no interaction effects for age x sex, age x treatment, sex x treatment or for age x sex x treatment. Table 10 shows the sum of squares, mean squares and F ratio for the main and interaction effects.

Discussion

Discussion of the results of the pre-assessment and major findings by significant main and interaction effects is presented in the paragraphs that follow.

Discussion: Pre-assessment

First, for the pre-assessment, the results showed no significant main effect between boys and girls among treatment groups and indicated no significant interaction effects between the factors of age, sex, and treatments on the t-unit language measure. However, there was a significant main effect for age. Seven year olds received significantly

higher scores than five year olds on the t-unit language measure. The fact that no significant main and interaction effects occurred within and between the factors of sex and treatments was important initially for the study. The fact that seven year old children showed significantly higher mean t-units of language than fives would be predicted and is characteristic of the general population. The results of the pre-assessment showed that children were homogeneous by sex and treatment groups relative to the t-unit measure.

Discussion: Age Effects

Prior to the experiment, the investigator was confident that the main effect of age would be significant. In reality seven year olds received significantly higher mean correct scores than fives on the cloze, language questions and t-unit measures. Older children are more cognitively advanced than young children on language comprehension (Greenfield, Nelson and Saltzman, 1971; Piaget, 1962: Pulaski, 1973). In fact, Piaget asserted that seven year old children on the average were cognitively able to think more abstractly and were less dependent on the use of concrete objects to develop, evoke, or strengthen through practice concepts or images than the five year old children. Seven year olds have more well developed cognitive schemes than five year olds (Piaget, 1962). And, languaging and thinking become better integrated and aid one another for development in the seven rather than the five year old (Furth, 1975; Goodson and Greenfield, 1975).

Discussion: Sex Effects

The results showed that there were no significant sex effects. Regardless of the cloze, language question and t-unit communication measures, five and seven year old boys and girls did not differ significantly on language comprehension. The result of no significant sex effects is supported by the results of other studies conducted, for example, Lieberman (1965) which showed that five and seven year old boys and girls did not differ on playfulness responses. In addition, the results of Pulaski (1973) and Weybright (1976) did not show differences between boys and girls on oral language comprehension. Although oral language comprehension and reading achievement are highly correlated (Evanechko, Ollila and Armstrong, 1974; Loban, 1963) and differences in reading achievement have been noted between elementary and high school boys and girls, Maccoby and Jacklin (1976) note that sex differences in oral language comprehension are thought to have their onset during the adolescent rather than the early years. Finally, older boys and girls from middle class socioeconomic levels, the levels from which this study's population sample were drawn, are less likely to show oral language comprehension differences than same age children drawn from low socioeconomic levels (Maccoby and Jacklin, 1976).

Discussion: Treatment Effects

The results of this study showed that play action and control groups did have varying effects on mediating language comprehension. Children in the body action group received significantly higher mean

correct scores than those on the abstract action and control groups; children in the puppet action yielded significantly higher mean correct scores than those in the abstract action and control groups.

There were several possibilities for explaining the obtained results. First, the results of Wolff and Levin (1972) with five and nine year old children, and Wolff, Levin, and Longobardi (1972) with five year old children, all of which were from middle SES populations, showed that active play compared to passive play facilitated performance of these children. For example, children who actively practiced story content through body movement showed significantly higher levels of recall on the cloze and question measures language comprehension than those who were required to image (the abstract action group in this study), and of course those in the control. Evidently, play which focuses on motor movement is a powerful motor component to develop and practice images and facilitate concepts and knowledge about the world (Piaget, 1962; Saltz and Johnson, 1974). In fact, behaving toward or using an object as though it were something other than it actually is (pretending the child's body is that of Mr. Strong's body in this study) is a basic factor in languaging and in children's freeing themselves from control of the external stimuli (Vygotsky, 1962). Second, the results of Varley, Levin, Severson, and Wolff (1973) showed that children who were required to use concrete action play with objects received significantly higher cognitive scores than those who imaged, mentally, directly, and without object or movement. In this study, the results showing that children in the puppet action (and body action) group, yielded significantly higher scores on language question measure than

those in abstract action and control are congruent with and support the findings of Varley, et al. The puppets may have served to maintain the children's attention and involvement and provided them with appropriate cues for practicing recall (Brown, 1976; Saltz and Johnson, 1974).

Third, and of particular interest, is the effect of puppet and body action on the language question measure compared to its effect on the cloze measure. With these types of language comprehension measures, the results in the investigation showed that body action and puppet action were equally facilitative on the language question measure. But, the body action play is significantly more facilitative than puppet action play (and abstract action play and control) on the cloze measure for language comprehension. This result becomes more interesting considering that in this investigation, the administration of the cloze and language question measures were counterbalanced for effects of learning. Perhaps the language question measure was more sensitive than the cloze measure in discriminating between "forms of the mediator" (Pederson and Wender, 1968) and between the play mediated puppet action and body action groups. For example, the cloze measure for language comprehension requires the child to fill in the exact target word which is missing from the sentence. In this instance, the contextual nature of the cloze procedure and the demands of language grammar may have confounded the result of the experiment. In the language question measure, the child could more freely respond to contextual cues of the statement generated from recall rather than the demands of both contextual cues as well as language grammar and syntax.

Fourth, the treatment effects on the cloze measure of language comprehension were similar for five and seven year olds. However, for the language comprehension question measure, the treatment effects showing higher correct means for those children in the body and puppet action than those in the other two groups were age appropriate and specific results. In other words, this treatment effect on the language comprehension question measure was observed and was characteristic of five year old children. For the seven year olds, the results of the treatments indicated that the forms of play action and control were comparable. It appears that for seven year old children in this study, body, puppet, abstract action and control treatments had comparable rather than differential effects on language comprehension as measured by the language comprehension question measure. These apparent "washout" effects of the treatments for seven year olds relative to significant differential effects in the fives have a plausible explanation derived from developmental theories of cognitive growth. Here, and on the average, the cognitive ability of the seven year old varied markedly from five year olds; children in the former rather than the latter age group can conceptualize abstract symbols without using concrete actions and objects (Piaget, 1962; Saltz and Johnson, 1974). This generalization from developmental theories implies that older children do not require as much or use concrete actions and objects in order to conceptualize, understand, and comprehend from cognitive and language perspectives (Piaget, 1962; Saltz and Johnson, 1974). That is, the older child conceptualizes without "doing" or physically acting on concrete objects. The young child requires "doing" in order to

conceptualize. The fact that the seven year olds regardless of play action and control treatments, received significantly higher mean scores than the fives on the language comprehension showed that they possessed the ability to conceptualize on abstract and symbolic bases and were well into the concrete state of cognitive development (Piaget, 1962).

Fifth, the results of the study showed that body, puppet, and abstract action and control treatment groups were comparatively facilitative relative to their effects as measured by the t-unit communication measure. Here, children who rehearsed the Mr. Strong story with body movement, with puppet and those who were required to "think things through" and those with no play-rehearsal time -- all performed just as well on the t-unit measure. With the t-unit, play was not an inhibitor (cf. Lesgold et al., 1974) but it was also not a facilitator as initially predicted on this particular dependent measure. There are several possibilities to explain this result. Here, the t-unit may be less sensitive to specific characteristics of and small modifications in oral language than is either the cloze or the language question measure (Loban, 1976; O'Donnell, 1967). Although both the cloze and language comprehension measures assessed significant effects of treatment, the t-unit measure did not pick up short-term mediated changes in the language of these young children. A final possibility concerned the findings of Levin, Bender and Lesgold (1976) and Lesgold, McCormick and Golinkoff (1975). Child's play may be a useful mediator when there is a "goodness of fit" between types of play mediators used in the investigation with types of measures that assess the "mediated."

Conceivably, play mediators in this study might not have achieved the necessary to optimal conditions for imaging as measured by the t-unit communication measure.

Discussion: Interaction Effects

There was one significant two-way interaction effect for age x treatment on the language comprehension question measure. There were no other significant interaction effects on either the cloze or the t-unit measures. The significant age x treatment interaction showed through mean analyses that seven compared to five year olds in abstract action groups received significantly higher mean correct scores and seven compared to five year olds in the control group yielded significantly higher mean correct scores. First, the fact that seven year olds yielded significantly higher scores in the abstract action as well as in the control group than the fives is extremely difficult to interpret because there are no significant effects for treatment across ages five and seven and within age seven (Winer, 1962). Second, these two results could be generally predictive of differences between seven and five year olds from middle class SES levels and could be artifacts of the particular populations and analyses used.

In summary, the study of the effects of age, sex and forms of play and control treatments showed several similar as well as differential results depending on the type of language comprehension measure used in the analyses. This investigation found some results which research can further explore. A brief summary, several limitations to the study and those possible areas for research investigation are described in the following chapter.

Summary and Conclusions

The study tested eighteen major hypotheses. The hypotheses were concerned with the relationship between the forms of play, age and sex of the children and the effect the forms of play had on language comprehension and language development. It was assumed that symbolic play is a cognitive skill and that there is a relationship between symbolic play and intellectual functions and to other cognitive functions such as language. It was also assumed that language is a cognitive function and that there is a relationship between spoken (oral) language and language comprehension.

For the initial pre-assessment, each participant in the study was asked to draw a picture including specific things. After completing the drawing, each child was asked to orally tell about the picture. The taped oral responses provided an initial assessment score that determined whether children in all groups were homogeneous.

The significant results in this study were:

1. On the cloze measure of language comprehension: a) seven year olds received significantly higher mean correct scores than five year olds; and b) all children in the body action groups received significantly higher mean scores than the abstract action and control groups.

2. On the question measure of language comprehension: a) seven year olds received significantly higher mean correct scores than five year olds in the abstract action and control groups; and b) five year olds in the puppet action and body action groups received significantly higher mean scores than the five year olds in the abstract action and control groups.

3. On the t-unit measure of language development the seven year olds received significantly higher mean scores than the five year olds.

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